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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,935	02/03/2006	Akihiko Nishio	19289.05198	8746
52989 7590 03/07/2007 STEVENS, DAVIS, MILLER & MOSHER, LLP 1615 L. STREET N.W. SUITE 850 WASHINGTON, DC 20036			EXAMINER AKBAR, MUHAMMAD A	
			ART UNIT	PAPER NUMBER
			2618	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/07/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

**Application No.**

10/562,935

**Applicant(s)**

NISHIO, AKIHIKO

**Examiner**

Muhammad Akbar

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☒ Certified copies of the priority documents have been received in Application No. JP 2003-191293.
  - 3) ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 12/30/2005
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claim(s) 1-4 and 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nobukiyo et al (U.S. Patent No. 6,993,294 B2) and in view of Toshimitsu (U.S. Patent No. 6,735,256 B1).

Re claim(s) 1 and 11, Nobukiyo discloses a mobile communication system includes a base station which is performed transmission control of data to the mobile station by using quality information (i.e. feedback information) from mobile station (see fig.1-4, col. 2 lines 22-37), comprising: a reception section (22 of fig.2) that received

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packet information with data mapped via up link from mobile station (see fig.1-4,11-12 and col. 8 lines 36-54); measuring reception quality based on the information signal; and base station determines a pilot signal (carrier) having the measured reception quality information as a feedback information carrier(col.11 lines 1-27).

But Nobukiyo failed to disclose a reception section that receives a multicarrier signal with data mapped on a plurality of carriers and determine the best quality value. However, Toshimitsu teaches radio communication system for performing transmission/reception of a packet in a multi-carrier transmission between a base station and a plurality of terminal stations (see col.2 lines 64-67) wherein base station reception system includes RF section (22 of fig.7) for down converting a radio frequency signal(carrier) received by the antenna to perform orthogonal demodulation and OFDM symbol detector for performing Fast Fourier Transform processing to an output of the RF section to detect OFDM symbol; and level detector (24 of fig.7) for detecting a reception level of a signal component for each sub-carrier included in the OFDM symbol ( data signals ) and judging section i.e. determination section (25 of fig.7,8) judging the best measured reception quality value by performing respective sub-carrier energy detection result (n pieces) then selector select the good quality (m pieces) then comparator judges the best quality result. (see fig.8) to control the transmission ( see fig.7-8, col.7 lines 14-39).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify base station constitution of transmission control of data to the mobile station based on feedback information and measure the reception

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quality (as taught by Nobukiyo) by incorporating reception section by OFDM symbol detector, level detector and judgment section wherein received multicarrier signal with data mapped on plurality of carrier from mobile stations and judging the best quality value (as taught by Toshimitsu) to improve selection of sub-carrier signal and reduce error and detection probability of multicarrier communication.

Re claim(s) 2 and 3, as discussed above with respect to claim 1, Nobukiyo further discloses base station communicates with N- number of mobile stations (see fig. 21 and col.14 lines 8-35) [plurality of communicating stations]; and upon receiving quality reception information from the mobile station base station can be transmitted high speed large amount of data with low error ratio(col.14 lines 1-7). But failed to discloses determining section preferentially assigns the carrier having the best reception quality to a communicating station having a large amount of data to be transmitted from the base station designates carrier as the feedback information carrier for communicating station. However, Toshimitsu teaches base station includes level judging section i.e. determination section (25 of fig.7,8) wherein determine the best measured reception quality value by performing respective sub-carrier energy detection result (n pieces) then selector select the good quality value (m pieces) then comparator judges the best quality result (see fig.8) to control the transmission ( see fig.7-8, col.7 lines 14-39) ;and determining section determines feedback information carrier based on a multicarrier signal received immediately before transmitting the feedback information (see fig.7-9,col.7 lines14-39).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify base station communicates with multiple mobile station and large number of data can be transmitted to mobile station based on feedback information (as taught by Nobukiyo) by incorporating judgment section wherein determine best reception quality feedback information and determine feedback information carrier based on multicarrier signal immediately before transmitting the feedback information (as taught by Toshimitsu) to reduce error ratio by selecting best reception quality value and high reliable multicast transmission can be possible.

Re claim 4, as discussed above with respect to claim 1, Nobukiyo further discloses multicarrier communication apparatus further comprising a transmission section (24 of fig.2) that transmits information about feedback information carrier and reception section ((22 of fig.2) receives a multicarrier signal with feedback information mapped on feedback information carrier ( see fig. 1-4, and col.5 lines31-40, claim 1)

Re claim 7, as discussed above with respect to claim 1, Nobukiyo further discloses multicarrier communication apparatus further comprising a transmission control section (24 of fig.2) that transmits feedback information using feedback information carrier (see fig.2 and col.23-40)

Re claim 8, as discussed above with respect to claim 7, Nobukiyo teaches all the limitations except a spreading section that spread predetermined feedback information carrier using a spreading code for feedback information. However, Toshimitsu teaches OFDM symbol detector (23 of fig.7) wherein performing fast fourier transform for processing code and spreading signal as sub-carrier of the reception signal with predetermined feedback information (see fig.7 and col.7 lines20-30)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify base station constitution of transmission control section that transmits feedback information using feedback information carrier (as taught by Nobukiyo) by incorporating OFDM symbol detector for processing code and spreading signal as sub-carrier of the reception signal and predetermined feedback information (as taught by Toshimitsu) to get multiple sub-carrier signal to generate a NAK signal to mobile station for receiving feedback information of transmission control.

Re claim 9 and 10, as discussed above with respect to claim 1, Nobukiyo further discloses a base station and mobile station apparatus comprising the multicarrier communication apparatus includes reception section that received multicarrier signal with data mapped, measuring the reception quality and judgment section (determination) wherein judges quality of reception signal based on feedback information (see fig.1-4, col.2 lines 22-38 col. 8 lines 5-54).

Re claim 12, as discussed above with respect to claim 1, Nobukiyo further discloses feedback information (i.e. uplink channel information) includes channel quality information, ACK and NACK information (see fig.7 and col.10 lines1-25)

4. Claim(s) 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nobukiyo as modified by Toshimitsu as applied to claim 1 and 4 above and further in view of Bae et al (U.S. Patent No. 5,832,387)

Re claims 5 and 6 Nobukiyo discloses in combination with Toshimitsu with respect to claim 1 and 4, Nobukiyo further discloses multicarrier communication apparatus control the transmission based on the reception quality from the mobile station and quality information is transmitted only as required therefore power consumption and interference wave power can be reduced as well as capacity of the uplink can be increased(see fig.7 and col.6 lines 14-31) but failed to disclose transmission section includes calculation section that calculates required transmit power so that the reception quality of feedback information carrier becomes a acquired quality; and calculates the required transmit power based on a difference between the reception quality of feedback information carrier and required. However, Bae teaches adaptive power allocation method and apparatus for multicarrier transmission system wherein calculation section (see block 400 of fig.5) calculate signal to noise ratio (SNR) [i.e. quality of the channel] for each sub channel and determining the transmission power value for each sub channel so that power can be allocated as required (see fig.5



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block 402); Bae further teaches determination of required transmit power value based on the differences of corresponding sub channel SNR quality (lower value) and calculated SNR value's (see fig.5 and 8,col.3 lines7-28) .

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made multicarrier communication apparatus control the transmission based on the reception quality and feedback information from the mobile station as modified by determination of best quality reception value (as taught by Toshimitsu) to incorporate calculation section for determining the transmit power value based on the feedback information and SNR values (as taught by Bae) to improve transmission efficiency as well as reduce power loss due to power is not allocating /transmitting to the negative or zero value of SNR channel.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure (7.96) .

The following patent are cited to further show the state of the art with respect to clips and bookmarks in general:

U.S. Patent No. 6,289,009 to Sato teaches CDMA transceiver used in mobile communication system

U.S. Patent No. 5,751,763 to Bruckert teaches method and apparatus for power control in a communication system

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U.S. Patent No. 6,694,147 to Viswanath et al teaches method and apparatus for transmitting information between a base station and multiple mobile station

U.S. PG. Pub. 2003/0118057 A1 to Ushirokawa et al teaches mobile communication system and control method between base station and a mobile station

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Muhammad Akbar whose telephone number is (571)-270-1218. The examiner can normally be reached on Monday- Thursday (7:30 A.M.- 5:00P.M). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on 571-272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MA

EDAN ORGAD  
PRIMARY PATENT EXAMINER

*Edan Orgad* 8/18/07